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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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10/619,781

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Naga Bhushan

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EXAMINER

VU, MICHAEL T

ART UNIT

PAPER NUMBER

2617

NOTIFICATION DATE

DELIVERY MODE

12/09/2008

ELECTRONIC

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Notice of the Office communication was sent electronically on above-indicated "Notification Date" to the following e-mail address(es):

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Office Action Summary	Application No.	Applicant(s)	
	10/619,781	BHUSHAN ET AL.	
	Examiner	Art Unit	
	MICHAEL T. VU	2617	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 10 September 2008.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-18 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-4, 8-11 and 15-18 is/are rejected.
- 7) ☒ Claim(s) 5-7 and 12-14 is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____ |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date <u>9/16/2008</u> . | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Information Disclosure Statement

1. The information disclosure statement (IDS) submitted on 9/16/2008 is in compliance with the provisions of 37 CFR 1.97. Accordingly, the information disclosure statement is being considered by the examiner.

Response to Arguments

2. Applicant's Remarks/Arguments filed September 10, 2007, have been fully considered but they are not persuasive.

3. On page 8 of Applicant's Remarks, Applicant argues that "installments for transmission of a subpacket, which neither taught nor suggested by the cited portions of Arvelo and Lee," on lines 10-12.

In response, the examiner has carefully reviewed the Applicant's Remarks. And maintains that, Lee indeed discloses the quality of service on wireless communications systems. **These techniques determine when errors occur in transmitted frames, then apply Bit Error Rate Power Control, Power-Based Re-Transmission, and Sub-Frame Selective Repeat methods to these errors.** Consequently, the handling of frame errors consumes fewer resources in the wireless communications systems (See paragraph [0014]).

Additionally, Lee clearly discloses **the Power Based Re-Transmission**. The RLP module is responsible for making "best effort" deliveries of frames to the upper layers of the protocol. The term "best effort" means that a frame received with errors will be acknowledged and asked to be retransmitted again. If the frame is received with errors after two tries, then it is delivered to the upper layers of the protocol for further action. Preferably, **frames that are re-transmitted because of errors** should be transmitted with higher power to ensure the error-free reception of the frame (See paragraph [0042]).

Moreover, Lee discloses the transmit power is immediately increased in the event that a frame is received in error. Thus, when frame is retransmitted due to its reception with errors, it is immediately re-transmitted with higher power to ensure the error-free reception of frame (See paragraph [0047]).

Furthermore, Lee disclosed the network protocol, and more specifically the OSI (Open System Interconnection) model, in that it is comprised of seven layers, **includes a Link Access Control (LAC) module and a Medium Access Control (MAC) module**. The MAC includes modules for MAC Control States, Radio Link Protocol (RLP), and Multiplexing. The Multiplexing module includes a module for Quality of Service (QoS) Control. Layer 2 is responsible for node to node validity and integrity of the transmission (See paragraphs [0029-0035]).

4. On page 8 of Applicant's Remarks, Applicant argues that "Arvelo does not teach or suggest determining a first number of installments for transmission of a first subpacket of data, power boosting transmissions of a second number of installments of the first subpacket of data, on lines 19-22.

In response, the examiner has carefully reviewed the Applicant's Remarks and asserts that, Arvelo clearly discloses power is **controlled by increasing the power level** of a wireless transmission if a number of packet errors in a short observation window exceeds a first threshold. Power is controlled by decreasing the power level of the wireless transmission if a number of packet errors in a long observation window falls below a second threshold (Abstract, Col. 4, lines 16-42).

Moreover, Arvelo discloses transmitter, whether or not the payload of a packet was successfully received based on the outcome of the CRC. For each positive CRC result, **the receiver sends a positive acknowledgement (ACK). For each CRC failure, receiver sends a negative acknowledgement (NACK) message to the transmitter to let the transmitter know that a particular packet of data had an error.** NACK messages are commonly used so that the transmitter will know to re-transmit the data in the packet that had the error and Transmitter counts the NACK messages and performs a power control operation such as the transmitter counts the indicated packet errors during the short and long observation windows and compares the number of errors to the respective thresholds. If the power level at the transmitter needs to be adjusted to achieve the desired signal quality, the transmitter either

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increases or decreases the power level accordingly (See Figure #1, and Col. 5, lines 21-45).

In view of the above the rejections using Arvelo and Lee are maintained. This rejection is made FINAL

Claim Rejections - 35 USC § 103

5. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

6. Claims 1-4, 8-11, 15-18 are rejected under 35 U.S.C. 103(a) as being unpatentable over Arvelo (US 7,082,107) in view of Lee (US 2001/0030955).

Regarding claims 1, 8, 15, 16, and 18, Arvelo teaches a method for transmission of packetized data in a wireless communication system (Col 7, line 59 to Col. 8, line 1-17) having a designated packet error rate (Col. 1, lines 6-10), the method comprising: determining a first number of installments for transmission of a first packet of data (Col. 3, lines 25-33, Col. 4, lines 51-65); the power boosting transmissions of a second number of installments of the first packet of data (Col. 4, lines 23-65, Col. 8, lines 5-32),

But Arvelo does not clearly teach wherein the second number is less than the first number, wherein the second number is selected to satisfy the designated packet error rate; and terminating transmission of the first subpacket of data after the second number of installments.

However, Lee teaches wherein the second number is less than the first number (See portion of Frame [0035, 0053-0054]), wherein the second number is selected to satisfy the designated packet error rate [0035, 0053-0054]; and terminating transmission of the first subpacket of data after the second number of installments ([0053-0054], sub-frame, and portion of frame).

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to modify Arvelo with Lee's teaching, in order to enhance the quality of service and save cost such as minimizing the delay of retransmission and reducing time period of latency.

Regarding claims 2 and 9, Arvelo and Lee teach the method as in claim 1, wherein a power boosting gain factor is applied to each of the second number of installments [0046-0050], [0053-0054] of Lee.

Regarding claims 3 and 10 the prior art of record fails to disclose alone or in combination, wherein the power boosting gain factor is nominally set to (N/M) , wherein N is the first number of installments (See portion of Frame [0035], [0046-0047]), and M is the second number of installments (See portion of Frame [0035], [0046-0047]) all of Lee.

Regarding claims 4 and 11, Arvelo and Lee teach the method as in claim 1, wherein terminating transmission of the first subpacket of data comprises: initiating a second subpacket of data after the second number of installments ([0053-0054, sub-frame Selective) of Lee.

Regarding claim 17, Arvelo and Lee teach the method as in claim 16, wherein the first negative acknowledgement has a first bit pattern ([0053-0054, error frame), and the second negative acknowledgement is a different bit pattern orthogonal to the first bit pattern [0053-0054, 0056-0057] all of Lee.

Allowable Subject Matter

7. Claims 5-7, 12-14 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

With respect to claims 5 and 12, the prior art of record fails to disclose alone or in combination, wherein the first number of installments for the first subpacket of data corresponds to a first time period, wherein terminating transmission of the first subpacket of data comprises: waiting for expiration of the first time period; and initiating transmission of a second subpacket of data after expiration of the first time period.

With respect to claims 6 and 13, the prior art of record fails to disclose alone or in combination, further comprising: receiving a negative acknowledgement message

after transmission of the second number of installments; and processing the first subpacket of data at a higher layer.

With respect to claims 7 and 14, the prior art of record fails to disclose alone or in combination, further comprising: receiving an acknowledgement message before transmission of all of the second number of installments; and initiating transmission of a second subpacket of data.

Conclusion

8. **THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Michael Vu whose telephone number is (571) 272-8131. The examiner can normally be reached on 8:00am - 6:00pm.

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If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Charles N. Appiah can be reached on 571-272-7904. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Michael Vu/
Examiner
AU-2617

/Charles N. Appiah/
Supervisory Patent Examiner, Art Unit 2617